

**WHAT IS CLAIMED IS:**

- 1 1. A content-duplication management apparatus that manages  
2 duplication and deletion of a content with respect to a  
3 playback apparatus connected to a network, based on requests  
4 acquired from the playback apparatus, comprising:  
5       a group judging unit operable to judge whether the  
6 playback apparatus belongs to a predetermined group;  
7       a holding unit operable to hold an in-group remaining  
8 number and an out-group remaining number, the in-group  
9 remaining number being a remaining number of duplications  
10 of the content permitted of apparatuses belonging to the  
11 group, and the out-group remaining number being a remaining  
12 number of duplications of the content permitted of  
13 apparatuses not belonging to the group; and  
14       a management unit operable, in response to a request  
15 acquired from the playback apparatus, to (i) reply in the  
16 affirmative and update the in-group remaining number or reply  
17 in the negative, based on the in-group remaining number, when  
18 the playback apparatus is judged to belong to the group, and  
19 (ii) reply in the affirmative and update the out-group  
20 remaining number or reply in the negative, based on the  
21 out-group remaining number, when the playback apparatus is  
22 judged to not belong to the group.

1 2. The content-duplication management apparatus of claim 1,  
2 wherein  
3 the request is a duplication request, and  
4 the management unit, in response to the duplication  
5 request, (i) replies in the affirmative and subtracts "1"  
6 from the in-group remaining number if the in-group remaining  
7 number is not "0", and replies in the negative if the in-group  
8 remaining number is "0", when the playback apparatus is  
9 judged to belong to the group, and (ii) replies in the  
10 affirmative and subtracts "1" from the out-group remaining  
11 number if the out-group remaining number is not "0", and  
12 replies in the negative if the out-group remaining number  
13 is "0", when the playback apparatus is judged to not belong  
14 to the group.

1 3. The content-duplication management apparatus of claim 1,  
2 wherein  
3 the request is a deletion request, and  
4 the management unit, in response to the deletion  
5 request, (i) replies in the affirmative and adds "1" to the  
6 in-group remaining number when the playback apparatus is  
7 judged to belong to the group, and (ii) replies in the  
8 affirmative and adds "1" to the out-group remaining number  
9 when the playback apparatus is judged to not belong to the

10 group.

1 4. The content-duplication management apparatus of claim 1,  
2 wherein

3 the request includes start information indicating a  
4 start time of duplication or deletion of the content,

5 the content-duplication management apparatus further  
6 comprises a time management unit that includes a clock and  
7 is operable, when the start time is shown by the clock, to  
8 output an operation instruction to the management unit, and

9 the management unit, on receipt of the operation  
10 instruction, (i) replies in the affirmative and updates the  
11 in-group remaining number or replies in the negative, based  
12 on the in-group remaining number, when the playback apparatus  
13 is judged to belong to the group, and (ii) replies in the  
14 affirmative and updates the out-group remaining number or  
15 replies in the negative, based on the out-group remaining  
16 number, when the playback apparatus is judged to not belong  
17 to the group.

1 5. The content-duplication management apparatus of claim 1,  
2 wherein

3 the request includes a usage expiry date-time of the  
4 content,

5           the content-duplication management apparatus further  
6   comprises a time management unit that includes a clock and  
7   is operable, when the usage expiry date-time is shown by the  
8   clock, to output an operation instruction to the management  
9   unit, and

10          the management unit, on receipt of the operation  
11   instruction, (i) adds "1" to the in-group remaining number  
12   when the playback apparatus is judged to belong to the group,  
13   and (ii) adds "1" to the out-group remaining number when the  
14   playback apparatus is judged to not belong to the group.

1   6. The content-duplication management apparatus of claim 1,  
2   wherein

3          the management unit notifies to the playback apparatus,  
4   transfer information showing a number that is less than or  
5   equal to at least one of the in-group remaining number and  
6   the out-group remaining number, and subtracts the number  
7   shown by the transfer information from the at least one of  
8   the in-group remaining number and the out-group remaining  
9   number.

1   7. The content-duplication management apparatus of claim 1,  
2   wherein

3          the management unit holds duplication-generation

4 information relating to the content, and (i) replies in the  
5 affirmative and updates the in-group remaining number or  
6 replies in the negative, based on the duplication-generation  
7 information and the in-group remaining number, when the  
8 playback apparatus is judged to belong to the group, and (ii)  
9 replies in the affirmative and updates the out-group  
10 remaining number or replies in the negative, based on the  
11 duplication-generation information and the out-group  
12 remaining number, when the playback apparatus is judged to  
13 not belong to the group.

1 8. The content-duplication management apparatus of claim 1,  
2 wherein

3 the request includes request-apparatus information  
4 unique to the playback apparatus, and

5 the management unit holds a revocation list showing one  
6 or more apparatuses to which content duplication is not  
7 permitted, and (i) replies in the affirmative and updates  
8 the in-group remaining number or replies in the negative,  
9 based on the request-apparatus information, the revocation  
10 list and the in-group remaining number, when the playback  
11 apparatus is judged to belong to the group, and (ii) replies  
12 in the affirmative and updates the out-group remaining number  
13 or replies in the negative, based on the request-apparatus

14 information, the revocation list and the out-group remaining  
15 number, when the playback apparatus is judged to not belong  
16 to the group.

1 9. The content-duplication management apparatus of claim 1,  
2 wherein

3 the request includes request-area information showing  
4 an area relating to the playback apparatus, and

5 the management unit holds specified area information  
6 that is for restricting an area in which duplication and  
7 deletion of the content is executed, and (i) replies in the  
8 affirmative and updates the in-group remaining number or  
9 replies in the negative, based on the request-area  
10 information, the specified area information and the in-group  
11 remaining number, when the playback apparatus is judged to  
12 belong to the group, and (ii) replies in the affirmative and  
13 updates the out-group remaining number or replies in the  
14 negative, based on the request-area information, the  
15 specified area information and the out-group remaining  
16 number, when the playback apparatus is judged to not belong  
17 to the group.

1 10. The content-duplication management apparatus of claim  
2 1, further comprising:

3        an authentication unit operable to share a session key  
4 with the playback apparatus by conducting authentication  
5 processing with the playback apparatus; and  
6        an encryption/decryption unit operable, if  
7 authentication is successful, to encrypt and decrypt  
8 communication with the playback apparatus using the session  
9 key.

1 11. The content-duplication management apparatus of claim  
2 1, further comprising:

3        a request accumulation unit operable to manage the  
4 requests using a request-arrival sequence queue, and to have  
5 the management unit execute a deletion request that is  
6 subsequent in the queue to a duplication request, prior to  
7 the duplication request, when the in-group or out-group  
8 remaining number is "0".

1 12. The content-duplication management apparatus of claim  
2 1, wherein

3        the network is a home network connected to an external  
4 network, the content is acquired from outside the home  
5 network, and the group judging unit judges apparatuses  
6 connected to the home network as belonging to the group.

1 13. A content-duplication management method for managing  
2 duplication and deletion of a content with respect to a  
3 playback apparatus connected to a network, based on requests  
4 acquired from the playback apparatus, comprising the steps  
5 of:  
6       judging whether the playback apparatus belongs to a  
7 predetermined group;  
8       holding an in-group remaining number and an out-group  
9 remaining number, the in-group remaining number being a  
10 remaining number of duplications of the content permitted  
11 of apparatuses belonging to the group, and the out-group  
12 remaining number being a remaining number of duplications  
13 of the content permitted of apparatuses not belonging to the  
14 group; and  
15       in response to a request acquired from the playback  
16 apparatus, (i) replying in the affirmative and updating the  
17 in-group remaining number or replying in the negative, based  
18 on the in-group remaining number, when the playback apparatus  
19 is judged to belong to the group, and (ii) replying in the  
20 affirmative and updating the out-group remaining number or  
21 replying in the negative, based on the out-group remaining  
22 number, when the playback apparatus is judged to not belong  
23 to the group.



1 14. A computer program applied in a content-duplication  
2 management apparatus that manages duplication and deletion  
3 of a content with respect to a playback apparatus connected  
4 to a network, based on requests acquired from the playback  
5 apparatus, comprising the steps of:  
6       judging whether the playback apparatus belongs to a  
7 predetermined group;  
8       holding an in-group remaining number and an out-group  
9 remaining number, the in-group remaining number being a  
10 remaining number of duplications of the content permitted  
11 of apparatuses belonging to the group, and the out-group  
12 remaining number being a remaining number of duplications  
13 of the content permitted of apparatuses not belonging to the  
14 group; and  
15       in response to a request acquired from the playback  
16 apparatus, (i) replying in the affirmative and updating the  
17 in-group remaining number or replying in the negative, based  
18 on the in-group remaining number, when the playback apparatus  
19 is judged to belong to the group, and (ii) replying in the  
20 affirmative and updating the out-group remaining number or  
21 replying in the negative, based on the out-group remaining  
22 number, when the playback apparatus is judged to not belong  
23 to the group.

1 15. A playback apparatus that requests duplication and  
2 deletion of a content, with respect to a content-duplication  
3 management apparatus as in claim 1 that manages duplication  
4 and deletion of the content, comprising:  
5       a request unit operable to request duplication or  
6 deletion of the content;  
7       a group notifying unit operable to notify to the  
8 content-duplication management apparatus, group information  
9 showing a group that the playback apparatus belongs to;  
10       an acquiring unit operable to acquire from the  
11 content-duplication management apparatus, permission  
12 information showing whether the request is permitted; and  
13       an execution unit operable to duplicate or delete the  
14 content, based on the permission information.

1 16. The playback apparatus of claim 15, further comprising:  
2       a broadcast transmitting unit operable to broadcast to  
3 apparatuses over a network, identification information  
4 identifying the content whose duplication or deletion is  
5 requested;  
6       a reply receiving unit operable to receive a response  
7 to the broadcasted identification information; and  
8       a selecting unit operable to select, based on a  
9 predetermined condition, one apparatus from apparatuses that

10 respond to the broadcast, wherein  
11 the request unit requests the selected apparatus for  
12 permission to duplicate the content.

1 17. The playback apparatus of claim 16, wherein  
2 the apparatuses over the network each have a preset  
3 priority level, and  
4 the selecting unit selects, from the apparatuses that  
5 respond, the apparatus having the highest priority level.

1 18. The playback apparatus of claim 16, wherein  
2 the apparatuses over the network each prehold  
3 capability information showing an information processing  
4 capability of the apparatus,  
5 the response includes the capability information, and  
6 the selecting unit selects, from the apparatuses that  
7 respond, the apparatus having capability information that  
8 shows the highest information processing capability.

1 19. The playback apparatus of claim 16, wherein  
2 the selecting unit selects the first apparatus to  
3 respond.

1 20. The playback apparatus of claim 16, wherein

2           the selecting unit selects, from the apparatuses that  
3   respond, the apparatus having the shortest round-trip time  
4   between an ICMP echo request message and an ICMP echo reply  
5   message.

1   21. The playback apparatus of claim 15, wherein  
2           the content-duplication management apparatus notifies  
3   to the playback apparatus, transfer information showing a  
4   number that is less than or equal to at least one of the  
5   in-group remaining number and the out-group remaining number,  
6   and  
7           the playback apparatus further comprises:  
8           a management unit operable to acquire the transfer  
9   information, and to permit decryption of the content within  
10   a range of the number shown by the transfer information, with  
11   respect to another apparatus.

1   22. The playback apparatus of claim 15, wherein  
2           the permission information includes a usage expiry  
3   date-time of the content, and  
4           the playback apparatus further comprises:  
5           a clock; and  
6           a management unit operable to delete the content when  
7   the usage expiry date-time is shown by the clock.

1 23. The playback apparatus of claim 15, further comprising:  
2 an authentication unit operable to share a session key  
3 with the content-duplication management apparatus by  
4 conducting authentication processing with the  
5 content-duplication management apparatus; and  
6 an encryption/decryption unit operable, if  
7 authentication is successful, to encrypt and decrypt  
8 communication with the content-duplication management  
9 apparatus using the session key.

1 24. The playback apparatus of claim 15, wherein  
2 the playback apparatus is a recording medium having an  
3 IC.

1 25. A playback method for requesting duplication and deletion  
2 of a content, with respect to a content-duplication  
3 management apparatus as in claim 1 that manages duplication  
4 and deletion of the content, comprising the steps of:  
5 requesting duplication or deletion of the content;  
6 notifying to the content-duplication management  
7 apparatus, group information showing a group that the  
8 playback apparatus belongs to;  
9 acquiring from the content-duplication management  
10 apparatus, permission information showing whether the

11 request is permitted; and

12 duplicating or deleting the content, based on the  
13 permission information.

1 26. A computer program applied in a playback apparatus that  
2 requests duplication and deletion of a content, with respect  
3 to a content-duplication management apparatus as in claim  
4 1 that manages duplication and deletion of the content,  
5 comprising the steps of:

6 requesting duplication or deletion of the content;

7 notifying to the content-duplication management  
8 apparatus, group information showing a group that the  
9 playback apparatus belongs to;

10 acquiring from the content-duplication management  
11 apparatus, permission information showing whether the  
12 request is permitted; and

13 duplicating or deleting the content, based on the  
14 permission information.

1 27. A content-duplication management system comprising a  
2 playback apparatus that requests and plays a content, and  
3 a content-duplication management apparatus that is connected  
4 to the playback apparatus via a network and manages  
5 duplication and deletion of the content with respect to the

6 playback apparatus, the playback apparatus including:  
7 a request unit operable to request duplication or  
8 deletion of the content;  
9 a group notifying unit operable to notify to the  
10 content-duplication management apparatus, group information  
11 showing a group that the playback apparatus belongs to;  
12 an acquiring unit operable to acquire from the  
13 content-duplication management apparatus, permission  
14 information showing whether the request is permitted; and  
15 an execution unit operable to duplicate or delete the  
16 content, based on the permission information, and  
17 the content-duplication management apparatus  
18 including:  
19 a group judging unit operable to judge whether the  
20 playback apparatus belongs to a predetermined group, based  
21 on the group information notified from the playback  
22 apparatus;  
23 a holding unit operable to hold an in-group remaining  
24 number and an out-group remaining number, the in-group  
25 remaining number being a remaining number of duplications  
26 of the content permitted of apparatuses belonging to the  
27 predetermined group, and the out-group remaining number  
28 being a remaining number of duplications of the content  
29 permitted of apparatuses not belonging to the predetermined

30 group; and

31 a management unit operable, in response to the request  
32 acquired from the playback apparatus, to (i) reply in the  
33 affirmative and update the in-group remaining number or reply  
34 in the negative, based on the in-group remaining number, when  
35 the playback apparatus is judged to belong to the  
36 predetermined group, and (ii) reply in the affirmative and  
37 update the out-group remaining number or reply in the  
38 negative, based on the out-group remaining number, when the  
39 playback apparatus is judged to not belong to the  
40 predetermined group.

1 28. The content-duplication management system of claim 27,  
2 wherein

3 the content-duplication management apparatus requests  
4 an accounting system to manage accounting, when the  
5 management unit replies in the affirmative.